Plumbers' Nightmare User Manual

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Table of Contents

Intended Users
Introduction
Getting Started
How to Play
Keeping Score
More Game Details
    -pipe segments
    -pipe rotation
    -water flow
Screenshot Diagrams

Note: In this user manual, the *italicized text* signifies our most basic parts of the game that we plan to implement first (before adding more game features).

Intended Users

This game is intended for off duty plumbers and people of all ages who love to solve puzzles and fix broken pipes.

Introduction

Welcome to Plumbers' Nightmare! Can you create a path for the moving water before the screen floods? Some pipes will be scattered on the screen, and the object is to provide an unobstructed path for the flow of water by clicking and rotating the pipes. You will win if the water reaches its destination through the pipe system you have made.

Getting Started

1. Open Plumbers' Nightmare.
2. Select level of difficulty (easy, medium, hard) by clicking on the respective box.
3. You will see a puzzle of the level of difficulty you selected, and you may begin playing the game (the timer begins immediately).

How to Play

The game begins with a large grid containing a set of pipes that are

scattered throughout the board. The starting pipe is located at the top of the screen, and this is where the water will begin flowing. There is also an ending pipe at the bottom of the screen that needs to be connected to the starting pipe. Your object is to make this connection by rotating the pipes on the board and linking them together. The pipes are rotated by clicking on them, and they are rotated 90 degrees with each click.

When the game starts, a timer (displayed in the corner) will start to run, indicating the amount of time left before the water begins to move through the pipes. Depending on the level of difficulty, you will have a set amount of time to click on and rotate pipes before the water flows, and you can also continue to rotate the pipes while the water is flowing. The timer will give you a head start in beating the flow of water to the bottom of the board, but if you have not connected the pipes and the water leaks out, the game will be over.

Keeping Score

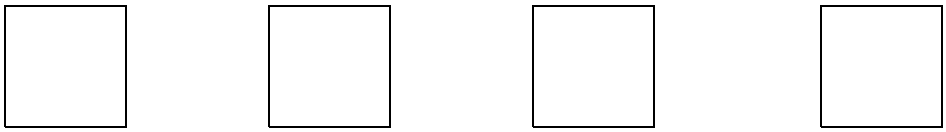
You will earn 10 points for every section of pipe that the water flows through. Even if you have not connected the starting and ending pipes, it is still possible to earn points in this game. If you are successful and do connect the starting and ending pipes, you will receive a 100 point bonus. Note that it could pay off to connect more pipes than necessary to complete the connection, however, this could be risky if the time runs out and the water flows through the pipes before you finish. You will also receive a bonus of 150 points if you connect the start and end pipes before the initial timer runs out.

The top ten high scores will be saved, so if you achieve a high score, you will be prompted to enter your name after your game. Keep playing again and again to make it to the top ten!

More Game Details

Though you are now ready to play Plumbers' Nightmare, this section includes a few more details about the game.

Pipes segments:
The following are the different pipes that may appear on the board:

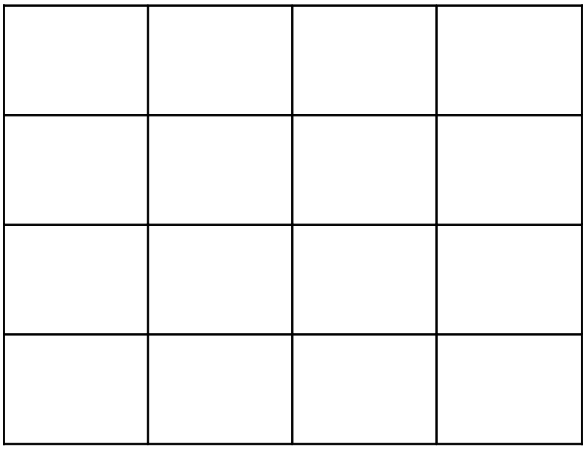


Straight *T-shaped* *Corner* *Cross*

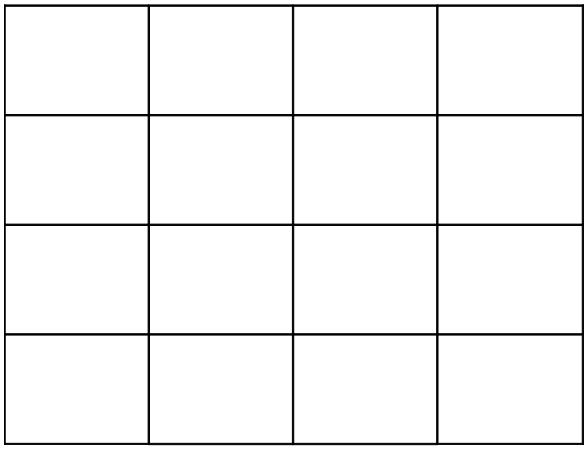
Pipe rotation:
Clicking on a pipe makes it rotate, and all pipes will rotate clockwise 90 degrees with each click.

Water flow:
The water will always flow in a straight line, unless the pipe has a curve that has no open ends (in which case the water will follow the curve). For example, if the water enters the top of a cross-shaped pipe, it will exit the bottom part of the pipe. The water will not turn on its own within the cross-shaped pipe and exit through the left or right branch of the pipe. Consider the following illustrations for sample water flow paths, as well as example solutions for changing the direction of the water:

Example:



Solution:

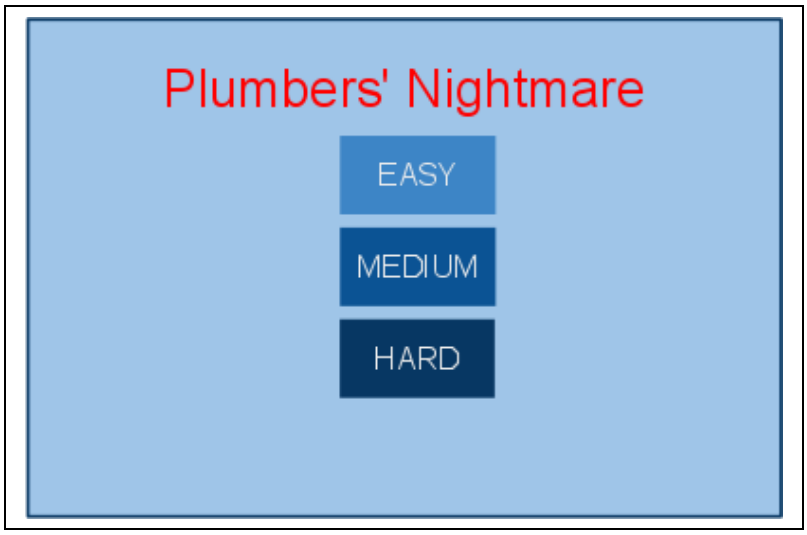


Example:

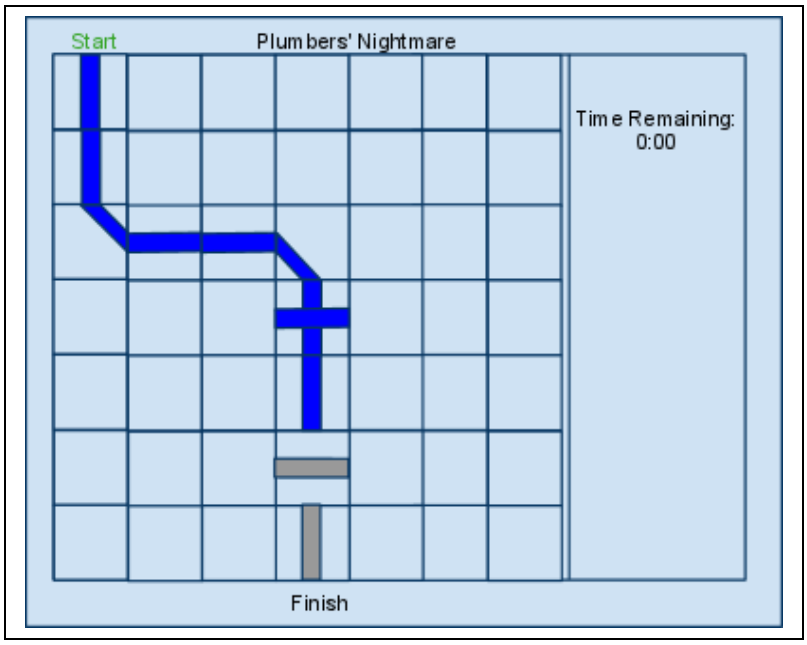
Solution:

Screenshot Diagrams

Starting screen:



Sample puzzle:



Note: to complete the puzzle above, the last piece of horizontal pipe must be rotated. However, the blue water has reached the end, meaning the connection is not complete and the game is over. The player would still receive 8 points for the water flowing through 8 sections of pipe.